PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 20174 PC 00	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/NO 2003/000262	International filing date *(day/month/year)* 30.07.2003	Priority date *(day/month/year)* 30.07.2002
International Patent Classification (IPC) or national classification and IPC G07C 3/00 // G01H 1/00, F01D 25/00		
Applicant Dynatrend AS et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 1 sheets, as follows:
      - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☒ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☒ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
14.01.2004	29.10.2004
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Lena Nilsson/EK Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/NO 2003/000262

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

pages 1-6 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished
pages* _____ as amended (together with any statement) under Article 19
pages* 7 received by this Authority on 26.10.2004
pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-2 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing *(specify)*: _____
- ☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/NO 2003/000262

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1	YES
	Claims		NO
Inventive step (IS)	Claims	1	YES
	Claims		NO
Industrial applicability (IA)	Claims	1	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: US, A, 4955269
D2: US, A, 5736643
D3: US, B1, 6601005
D4: GB, A1, 2318873
D5: EP, A1, 465696
D6: US, A, 5097711

The cited documents represent the general state of the art. The invention defined in claim 1 is not disclosed by any of these documents. The cited prior art does not give any indication that would lead a person skilled in the art to the claimed method for determining the condition of a turbine blade, and utilizing the collected information for estimation of the lifetime of the blade in determining when a rotating stall is occurring in the turbine blades in a compressor, where rotating stall is indicated and included in the lifetime estimation for the turbine blade when the blade pass frequency of the compressors stage in question starts to fluctuate and the fluctuation falls outside preset limits, as the frequency fluctuation deviations from the normal blade frequency is the main indicator of rotating stall. Accordingly, the invention defined in claims 1 is novel and is considered to involve an inventive step. The invention is industrially applicable.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
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Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

Application No. Patent No.	Publication date *(day/month/year)*	Filing date *(day/month/year)*	Priority date (valid claim) *(day/month/year)*
US, B1, 6601005	29-07-2003	25-06-1999	

2. Non-written disclosures (Rule 70.9)

Kind of non-written disclosure	Date of non-written disclosure *(day/month/year)*	Date of written disclosure referring to non-written disclosure *(day/month/year)*

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

It can be taken into consideration that the wording of the characterising portion of the claim of 26.10.2004 is not identically found in the description. However, the subject-matter of the characterising portion is considered to correspond to the formulations in the description.

C l a i m

1. A method for determination of the condition of a turbine blade, and utilizing the collected information for estimation of the lifetime of the blade in determining when a rotating stall is occurring in a compressor's (1) turbine blades (2, 4), by utilizing a vibration sensitive sensor (10) that is fixed to the compressor's (1) casing (6), and where the measured values from the vibration sensitive sensor (10) are filtered and allocated to their respective frequencies, in that the measured values within respective frequency groups are given a minimum and/ore a maximum value limit, c h a r a c - t e r i z e d i n that rotating stall is indicated and included in a lifetime estimation for the turbine blade (2, 4) when the blade pass frequency of the compressors stage (2) in question starts to fluctuate and the fluctuation falls outside preset limits, as the frequency fluctuation deviations from the normal blade frequency is the main indicator of rotating stall.